Claims

1-9. (cancelled)

10. (currently amended) The method of ~~claim 1~~ claim 40, further comprising:

obtaining peak frequencies and associated decay rates from the first and second multi-

dimensional NMR data sets, and

forming the set of mutually exclusive terms with the obtained peak frequencies and associated

decay rates.

11-28. (cancelled)

29. (currently amended) The method of claim ~~24~~ 39 wherein the third multi-dimensional

spectroscopic data set is obtained at lower resolution than the first and second multi-dimensional NMR

spectroscopic data sets.

30-37. (cancelled)

38. (currently amended) A method of obtaining multi-dimensional nuclear magnetic

resonance (NMR) spectroscopic information for a specimen, the method comprising:

obtaining a first multi-dimensional NMR spectroscopic data set and a second multi-

dimensional NMR spectroscopic data set, wherein the first and second multi-dimensional NMR

spectroscopic data sets each have at least a first coordinate and a second coordinate, wherein the first

coordinate of the first multi-dimensional NMR spectroscopic data set and the first coordinate of the

second multi-dimensional NMR spectroscopic data set are common coordinates, and the second

coordinate of the first multi-dimensional NMR spectroscopic data set and the second coordinate of the

multi-dimensional NMR spectroscopic second data set are not common coordinates;

identifying a set of two or more mutually exclusive terms based on the first multi-dimensional

NMR spectroscopic data set and the second multi-dimensional NMR spectroscopic data set, wherein

the mutually exclusive terms are associated with combinations of coordinate values of the second

coordinates of the first and second multi-dimensional NMR spectroscopic data sets associated with at

least one common coordinate value of the common coordinate;

forming a model of multi-dimensional NMR spectroscopic information, the model having a

predetermined dimension greater than that of the first multi-dimensional NMR spectroscopic data set

and the second multi-dimensional NMR spectroscopic data set, wherein the model includes the set of

two or more mutually exclusive terms;

obtaining a third multidimensional NMR spectroscopic data set having the predetermined

dimension;

fitting the model to the third multi-dimensional NMR spectroscopic data set; ~~and~~

selecting only one of the set of mutually exclusive terms to represent the multi-dimensional

NMR spectroscopic data based on the fitting; and

storing the selected set of mutually exclusive terms.

39.   (currently amended) The method of ~~claim 1~~ claim 38, further comprising ~~providing~~

obtaining the ~~at least~~ first and second multi-dimensional NMR spectroscopic data sets and ~~a~~ the third

multi-dimensional NMR spectroscopic data set by NMR measurements of the specimen, ~~wherein the~~

~~first, second, and third multi-dimensional data sets are measured NMR data sets.~~

40. (new) The method of claim 38, further comprising displaying the model multi-dimensional

NMR spectroscopic information based on the selected set of exclusive terms on a monitor.